

STUDIES IN THE EUPATORIEAE (ASTERACEAE). CLXXVIII.

ADDITIONS TO *EITENIA* AND *LOMATOZOMA*.

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Recent studies of Brazilian material have encountered some previously undescribed species belonging to two of the small genera of the subtribe *Praxelinae*, both genera being endemic to Brazil. The new species of *Eitenia* represents a second for that genus, and provides further insight into the limits of variation to be expected. The new species of *Lomatozoma* brings the total for that genus to four, and a key is provided for that genus, which until recently was considered monotypic. The occurrence of asymmetry in corollas of both genera is notable, not having been present in previously described members of *Lomatozoma*. This characteristic, which is unusual in the tribe Eupatorieae, has now been noted in three genera of the subtribe *Praxelinae*: *Eitenia*, *Lomatozoma* and *Praxeliopsis*.

The genus, *Eitenia*, judged on the basis of two species, is closest to the genus, *Eupatoriopsis*, with which it shares the elongate receptacle and the broad obcompressed mostly two-ribbed achenes. The leaves also are similar in the trinerved condition originating at the bases of the short petioles, a feature less evident in most other members of the *Praxelinae*. The original description of *Eitenia* (King & Robinson, 1974) emphasized the asymmetric corollas of the peripheral flowers and the long pappus setae as distinctions from *Eupatoriopsis*, both characters still being valid. More subtle differences include the more cylindrical throats of the corollas, the narrower anther thecae, the longer papillae inside the throat of the corolla, especially along the veins, and the less cylindrical receptacle. Re-examination of the isotype of *Eupatoriopsis* has shown another major distinction in the involucre of the latter, the bracts are thinner and more persistent, mostly spreading rather than falling to allow release of the achenes. In the latter feature, *Eupatoriopsis* has partially reverted from the characteristic form of involucre in the subtribe *Praxelinae*.

EITENIA POLYSETA R. M. King & H. Robinson, sp. nov.

Plantae herbaceae annuae? erectae ca. 30 cm altae pauce vel non ramosae. Caules pallide rubrescentes teretes striati dense hirsuti. Folia opposita, petiolis 1-2 mm longis; laminae 1.5-2.5 cm longae et 0.7-1.5 cm latae base breviter acutae margine argute 2-4-serratae vel lobatae apice argute acutae supra sparse pilosae subtus subcarnosae distincte glandulo-punctatae plerumque in

nervis pilosae plerumque a caulibus valde ascendentiter trinervatae, nervis subtus prominentibus. Inflorescentiae diffusae inferne opposite ramosae, ramis ultimis 2-4 cm longis glabris vel subglabris. Capitula cylindrica vel anguste campanulata ca. 8 mm alta et 4 mm lata base pauce glandulo-punctatae; squamae involucri 22-25 valde inaequales appressae omnino facile deciduae lanceolatae 2-7 mm longae ad 1.3 mm latae margine anguste scariosae apice caudato-attenuatae extus trinervatae glabrae. Flores ca. 50 in capitulo; corollae albae in floribus exterioribus asymmetricae in lobis exterioribus ca. 1.5 mm longae, tubis ca. 1 mm longis glabris, faucibus intus papillosis, papillis in nervis aliquantum longioribus, lobis plerumque ca. 0.6 mm longis et 0.45 mm latis intus dense longe apiculate papillosis extus sparse puberulis superne pauce glandulo-punctatis; thecae antherarum ca. 0.7 mm longae; appendices antherarum anguste oblongae ca. 0.2 mm longae et 0.12 mm latae; appendices stylorum angustae, papillis non patentibus. Achaenia obcompressa plerumque bicostata raro tricostata ca. 2.3 mm longa superne ca. 1.0 mm lata in costis marginalibus ubique longe setifera caeterum sparse breviter setifera; setae pappi ca. 20 longiores plerumque 3.5 mm longae, setae tenuiores breviores interdum alterna interspersae. Grana pollinis defectiva 18-23 μ m in diam.

TYPE: BRASIL: Goiás: Serra dos Pirineus. ca. 10 km (straight line) NE of Corumbá de Goiás; elev. 1050 m; woods and rocky cerrado at base of waterfall on Rio Corumbá. Herb in open sand near stream; flowers white. 15 May 1973. *Anderson 10354* (Holotype UB). PARATYPE: BRASIL: Distrito Federal: Universidade de Brasília, disturbed cerrado. Elev. 975 m. 6 May 1966. *H.S. Irwin, J.W. Grear, R. Souza & R. Reis dos Santos 15645* (US).

The new species differs from *E. praxeloides* by the more densely hirsute stems, the more acute bases of the leaves, the sharp tips of the leaf lobes, the predominantly opposite branching in the inflorescence, the basal involucrel bracts being generally larger and less numerous, the inner involucrel bracts having longer tapering attenuate tips, the corollas being whitish rather than violet, and the setae of the pappus being more numerous. The pappus of the new species has up to 20 setae, of which 10 or more are thick as in *E. praxeloides*. The remaining interspersed setae are shorter and very slender. The papillae along the veins inside the throat of the corolla are not as long as in *E. praxeloides*, being scarcely differentiated from the papillae of the intervening surface.

Both species of *Eitenia* occur in the Goiás area, but the new species is from in and near the Federal District. *Eitenia praxeloides* is from the Município de Paraíso do Norte de Goiás, 500 km to the north of the Federal District.

Both specimens of the new species have defective pollen and the anthers are quite small. Correlated with, and perhaps partly because of the lack or near lack of pollen, the long papillae of the style appendages mostly remain appressed. In *E. praxeloides*,

pollen is present and not deformed, the papillae of the style are spreading, and the corollas are distinctly pigmented, all indicating maintenance of active pollination mechanisms and a normal sexual reproduction.

The genus *Lomatozoma* was recognized for over a century on the basis of the dissected leaves and the short pappus of the original species, *L. artemisiifolium*. The paleaceous receptacle was also noted. Recent additions to the genus (King & Robinson, 1975, 1978) have shown that the leaves are not always dissected and that the receptacles are usually not paleaceous. The genus has continued to be distinguished, however, on the basis of the minute carpopodium, the non-conical receptacle, and the short capillary pappus. The trichomes have been given little notice previously, but recent studies show that they are the most unique features of the genus. There are two types, both glandular. The undersurfaces of the leaves in all four species bear glandular dots of unusually large size. The other type of gland in the genus is best developed in *L. artemisiifolium* where the stems and leaves are covered with long-stipitate glands which are uniseriate. The other species have comparatively minute glands on the stems, various surfaces of the leaves, and on the involucral bracts which, on microscopic examination, also prove with few exceptions to be uniseriate. As the exceptions suggest, these glands are related to the biseriate glands found elsewhere in the family. No other example of uniseriate hairs with glandular tips is presently recorded for the Asteraceae.

LOMATOZOMA INAEQUALE R. M. King & H. Robinson, sp. nov.

Plantae herbaceae perennes ca. 40 cm altae multo ramosae. Caules brunnescentes teretes striati perminute stipitato-glanduliferi inferne glabrescentes pallide corticati. Folia opposita, petioles plerumque 2-6 mm longis; laminae ovatae plerumque 9-14 mm longae et 5-14 mm latae base truncatae vel breviter obtusae margine utrinque 1-3-lobatae inter lobos inferiora profundius divisae apice breviter obtusae supra perminute stipitato-glanduliferae subtus pallidiores dense glandulo-punctatae, glandulis magnis globosis. Inflorescentiae diffusae laxae cymosae, ramis tenuibus plerumque 1-5 cm longis perminute stipitato-glanduliferae. Capitula cylindrica ca. 6 mm alta et 2.5-3.0 mm lata; squamae involucri ca. 25 imbricatae omnino deciduae valde inaequales ovatae vel anguste oblongae 1.5-5.0 mm longae et ca. 1.0 mm latae superne margine et extus perminute stipitato-glanduliferae apice acutae vel breviter acuminatae; receptacula superne convexa. Flores 15-20 in capitulo; corollae lavandulae ca. 4 mm longae juveniter superne leniter incurvatae, tubis ca. 0.5 mm longis extus glabris, faucibus 2.5 mm longis intus in partibus interioribus valdius papillois, lobis inaequalibus interioribus 0.6-0.7 mm longis exterioribus ca. 0.9 mm longis intus perpapillois extus sparse puberulis; thecae antherarum ca. 1 mm longae; append-

ices antherarum ovatae ca. 0.25 mm longae et 0.12-0.15 mm latae apice interdum subacutae. Achaenia ca. 2.2 mm longa plerumque in costis lateralibus setifera superne densius et longius setifera base dense spiculifera; setae pappi ca. 15 valde inaequales 0.4-2.0 mm longae patentiter marginaliter scabridulae extus papillo-sae, cellulis apicalibus argute acutis. Grana pollinis ca. 20 μ m in diam.

TYPE: BRASIL: Mato Grosso: Top and eastern slope of mountain ca. 9 km NE of Barra do Garças; elev. 500-700 m; sandstone and sandy soil with cerrado. Herb in crevices in sandstone; heads pale blue, turning pink in press. 6 May 1973. *Anderson 9826* (Holotype UB, isotype US).

Lomatozoma inaequale is closely related to *L. huntii*, also from Mato Grosso. Both species have shortly acute involu-crals bracts with minute glands on the outer surface. The latter species is most obviously distinct in the more deeply lobed and often tripartite leaves. The new species is unique in the genus in the partially zygomorphic nature of the corollas. The corollas have the outer lobes larger and the inside surface of the throat nearest the center of the head is more strongly papillose.

The four species of *Lomatozoma* can be distinguished by the following key.

1. Stems and leaves densely pubescent with long gland-tipped hairs; involu-crals bracts narrowly acute; paleae present
 *L. artemisiifolium*
1. Stems and leaves with only minute or sessile glands; involu-crals bracts with short-acute or rounded tips; paleae absent 2
2. Involu-crals bracts with mostly rounded or obtuse tips, minute glands restricted to the margin; heads with 25-27 flowers
 *L. andersonii*
2. Involu-crals bracts with mostly short-acute to apiculate tips, with minute glands on margins and upper outside surface; heads with 10-20 flowers 3
3. Leaves shallowly lobed; heads with 15-20 flowers; corollas zygomorphic, with longer outer lobes, tip of corolla incurved in bud *L. inaequale*
3. Lower leaves tripartite or deeply lobes; heads with ca. 10 flowers; corollas symmetrical *L. huntii*

LITERATURE CITED

- King, R. M. and H. Robinson 1974. Studies in the Eupatorieae (Asteraceae). CXXIV. A new genus, *Eitenia*. *Phytologia* 28 (3): 282-285.
- _____. 1975. Studies in the Eupatorieae (Asteraceae). CXLVIII. A new species of *Lomatozoma*. *Phytologia* 32 (3): 246-249.
- _____. 1978. Studies in the Eupatorieae (Asteraceae). CLXXIII. A new species of *Lomatozoma*. *Phytologia* 39 (3): 129-131.

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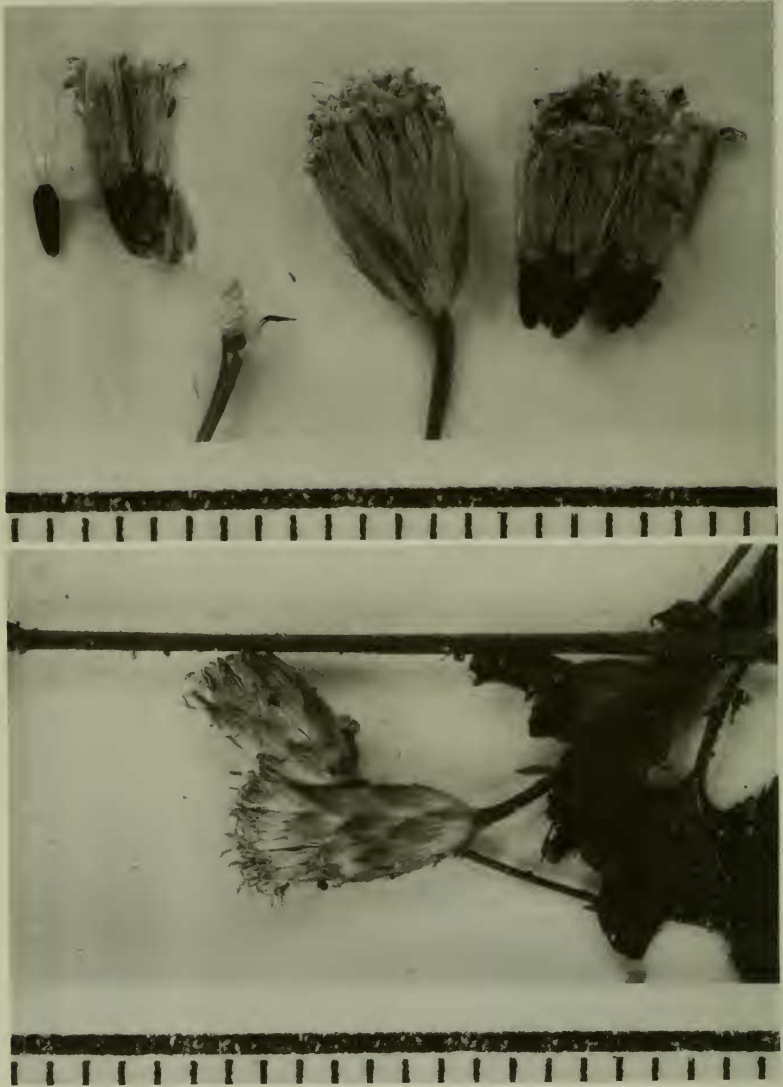
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PLANTS OF THE PLANALTO DO BRASIL
Collected for The New York Botanical Garden by W. E.
S. R. M. R. Reis dos Santos, and R. Souza.
Estado de Mato Grosso

Lomatozoma inaequale R. M. King & H. Robinson, Holotype,
Herbário Universidade de Brasília.



Enlargements of heads: Top. *Eitenia polyseta*. Bottom. *Lomatozoma inaequale*.